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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,690	09/19/2006	Thomas Edward Hughes	33662	9906

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CORPORATE INTELLECTUAL PROPERTY
ONE HEALTH PLAZA 104/3
EAST HANOVER, NJ 07936-1080

EXAMINER	
CHERNYSHEV, OLGA N	
ART UNIT	**PAPER NUMBER**
1649	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,690	HUGHES, THOMAS EDWARD	
	Examiner	Art Unit	
	Olga N. Chernyshev	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-20* is/are pending in the application.

4a) Of the above claim(s) *3,9,12-16 and 21-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-8,10,11 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group and species of Alzheimer's disease and vildagliptin in the reply filed on June 17, 2009 is acknowledged. Claims that encompass the elected subject matter are as follows – 1, 4-8, 10, 11 and 17-20.

2. Claims 3, 9, 12-16 and 21-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 17, 2009.

3. Claims 1, 4-8, 10, 11 and 17-20, insofar as they are directed to the elected species are under examination in the instant office action.

Claim Objections

4. Claim 1 is objected to because the claim recites an acronym that is not spelled-out in its first use in the claims (*i.e.* DPP-IV). It would be remedial to amend the claim language to define the acronym in claim 1 so that it is clearly understood what it stands for.

5. In claim 4, "Huntington's chores" is "Huntington's chorea" perhaps.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 is directed to a method of treatment by administration of DPP-IV inhibitors, wherein the "inhibitor is [...] and [...] or optionally in any case pharmaceutical salts thereof". Thus, the claim recites administration of not one compound or a salt thereof but all of the recited drugs due to the use of "and" before the last compound recited. If it is Applicant's desire to encompass only one of the compounds recited, and not the combination of all of them, using format "selected from the group consisting of" is suggested.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1, 4-8, 10, 11 and 17-20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods of treatment of Alzheimer's disease and selected pathological conditions encompassed by the broad terms of "neurodegenerative disorders, cognitive disorders and improve[ement of] memory and learning ability" by administration of DPP-IV inhibitors as taught and fully disclosed by prior art, does not reasonably provide enablement for prevention or delay of progression of these diseases or for treatment of any neurodegenerative and cognitive disorder in general, as currently claimed . The specification does not enable any person skilled in the art to which it pertains, or with which it is

most nearly connected, to use the invention commensurate in scope with these claims. It would require a significant amount of undue experimentation for one skilled in the art to research and discloser how to practice Applicant's invention as currently claimed.

The factors to be considered in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art and, (8) the breadth of the claims. *In re Wands*, 8 USPQ2d, 1400 (CAFC 1988).

Claims 1, 4-8, 10, 11 and 17-20 are broadly drawn to methods for prevention, delay of progression or treatment of neurodegenerative disorders, cognitive disorders and for improving memory and learning ability by administration of a therapeutically effective amount of a DPP-IV (dipeptidyl peptidase IV) inhibitor. The specification provides a list of suitable DPP-IV inhibitors at pp. 2-11 and a list of disorders that are asserted to be treated by administration of the inhibitors of DPP-IV enzyme at pp. 12-21. In addition, a list of prophetic examples explaining how to administer vildagliptin to a patient is presented at pp. 34-37.

At the time of filing, the art recognizes therapeutic benefits of DPP-IV inhibitors to treat several pathological conditions, such as for regulation of blood sugar levels to treat hypoglycemia (US Patent 6,319,893), to treat neurological conditions (epilepsy, pain) and mental disorders (schizophrenia and anxiety) and neurodegenerative disorders (Alzheimer's disease), see US Patents 7,435,420 and 7,132,104, and reasons of record in section 11 of the instant office action. Further, the art recognized neuroprotective effects of inhibitors of DPP-IV *in vitro* and *in*

vivo, Wu et al., 2003, Advances in Exp. Medicine and Biology, Spring St., NY, US. 2003, Vol. 524, pp. 351-5. Also, with respect to prevention and delay of Alzheimer's disease as specifically recited in claims 6 and 7, the art specifically teaches the absence of available treatments to reverse, slow down or prevent the course of AD, see Vickers, Drugs Aging, 2002, 19 (7), pp. 487-94.

With respect to claim breadth, the standard under 35 U.S.C. §112, first paragraph, entails the determination of what the claims recite and what the claims mean as a whole. In addition, when analyzing the enablement scope of the claims, the teachings of the specification are to be taken into account because the claims are to be given their broadest reasonable interpretation that is consistent with the specification (see MPEP 2111 [R-1], which states that claims must be given their broadest reasonable interpretation

"During patent examination, the pending claims must be "given *>their< broadest reasonable interpretation consistent with the specification." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550- 51 (CCPA 1969)".

As such, the broadest reasonable interpretation of the claimed method is that it allows the prevention, delay of progression and treatment of any of the casually unrelated disorders and diseases listed at pp. 12-21 by administration of a DPP-IV inhibitor. Thus, the claims encompass an unreasonable number of conditions asserted to be prevented and treated by a single mechanism of inhibiting enzymatic activity of DPP-IV, which the skilled artisan would not know

how to evaluate. As opposed to the claims, what is disclosed about the claimed method is less than narrow: a list of inhibitors followed by a list of disorders and five prophetic examples under the headline "experimental part" which are limited to a proposal of a single step of administration of vildagliptin to patients suffering from AD (Examples 1), AD with MCI (Example 2), diabetes (Example 3), and two prophetic protocols of experiments in which one skilled in the art is invited to research and discover for himself if vildagliptin has any effect on learning deficit in aged rats (Example 4) or in mice model of Parkinson's disease (Example 5).

Thus, the scope of enablement for the instant claimed methods is determined solely based on the knowledge in the art and not the instant disclosure. The instant specification by itself is not enabled for practicing even one particular embodiment of the claimed methods because it is limited to disclosure of what is known in the art (DPP-IV inhibitors and lists of medical conditions) and hypothetic protocols - an invitation to experiment and discover what result will occur when vildagliptin is administered to AD patients in a dose of 25 mg or 50 mg daily, p. 34, or to aged rats further subjected to standard avoidance learning tests, pp. 35-36.

"[T]o be enabling, the specification.., must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'" *Wright*, 999 F.2d at 1561, 27 USPQ2d at 1513 (emphasis added), quoted in *Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1365, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997). Thus, "there must be sufficient disclosure, either through illustrative examples or terminology, to teach those of ordinary skill how to make and how to use the invention as broadly as it is claimed." *In re Vaeck*, 947 F.2d 488, 496 & n. 23, 20 USPQ2d 1438, 1445 & n. 23 (Fed. Cir. 1991), quoted in *Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1362, 1372, 52 USPQ2d 1129, 1138 (Fed. Cir. 1999).

"Patent protection is granted in return for an enabling disclosure..., not for vague intimations of general ideas that may or may not be workable." *Genentech*, 108 F.3d at 1365, 42 USPQ2d at 1005. "Tossing out the mere germ of an idea does not constitute enabling disclosure. While every aspect of a generic claim certainly need not have been carried out by an inventor, or exemplified in the specification, reasonable detail must be provided in order to enable members of the public [skilled in the art] to understand and carry out the invention." *Id.* at 1366, 42 USPQ2d at 1005 (emphasis added).

The instant specification is not enabling because one cannot follow the guidance presented therein and practice the full scope of the claimed methods without first making a substantial inventive contribution.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 4, 5, 8, 10, 11, 17-18 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by US patent 7,435,420, 2008, filing date of 2000 (henceforth '420 patent).

Claims 1, 4, 5, 8, 10, 11, 17-18 and 20 are directed to methods of treatment of Alzheimer's disease (AD) by administration of DPP-IV inhibitor. The '420 patent teaches administration of DPP-IV inhibitors to treat neurodegenerative disorders including cognitive

dysfunction and dementia and specifically Alzheimer's disease, see column 1, section 1, and column 10, lines 8-35, claim 3 reciting DPP-IV inhibitors and claim 13 directed to further administration of NPY, thus fully anticipating the instant claimed invention.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 7,435,420, 2008, filing date of 2000 (henceforth '420 patent).

Claim 19 is directed to methods of treatment of Alzheimer's disease (AD) by administration of DPP-IV inhibitor vildagliptin. The '420 patent teaches administration of DPP-IV inhibitors to treat AD, see reasons of record in section supra. The '420 patent does not specifically recite vildagliptin to be used as a specific DPP-IV inhibitor.

At the time the invention was made, various DPP-IV inhibitors were known in the art as evidences by Applicant's own specification, pp. 2-11. Thus, it would have been obvious and well within the technical grasp for one of ordinary skill in the art to use any suitable inhibitor of DPP-IV enzyme to practice the invention as fully disclosed by the '420 patent. One of ordinary skill in the art would have been motivated to do this because substituting one inhibitor of another would have lead to predictable results.

Double Patenting

15. It is noted that Applicant has filed several Patent applications with USPTO claiming methods of treatment of various pathological conditions by administration of DPP-IV inhibitors. Applicant is required to disclose which applications pursue similar subject matter so that the applications can be properly evaluated with respect to Double patenting. Alternatively, finding a new patent application filed by Applicant and claiming substantially overlapping subject matter during prosecution of the instant application will not be considered as a new ground of rejection.

Conclusion

16. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga N. Chernyshev whose telephone number is (571) 272-0870. The examiner can normally be reached on 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey J. Stucker can be reached on (571) 272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Olga N. Chernyshev, Ph.D.

September 1, 2009

/Olga N. Chernyshev/
Primary Examiner, Art Unit 1649